DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: STP-114-2(13) Stephens
P. I. No.: 132440
S.R. 365/Toccoa Bypass Extension

OFFICE: Engineering Services

DATE: January 22, 2008

FROM: Brian Summers, P.E., Project Review Engineer

TO: Babs Abubakari, P.E. State Consultant Design and Program Delivery Engineer

SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES

Recommendations for implementation of Value Engineering Study Alternatives are indicated in the table below. Incorporate alternatives recommended for implementation to the extent reasonable in the design of the project.

ALT No.	Description	Savings PW & LCC	Implement	Comments
PAVEMENT (A)				
A-1	Use Superpave Design in lieu of Concrete for the Mainline Pavement	$3,930,000	Yes	This should be done.
A-4	Build a two lane typical section on a four lane Right of Way section	$14,825,000	Yes	This project is currently in Long Range. The need for the additional two lanes appears to be past the 2032 Design Year, based on the traffic volumes presented.
RIGHT OF WAY (B)				
B-2	Change the alignment to avoid displacements in the area of CR 57/Oak Valley Road	$872,200	No	There were four parcels in this area that were advanced acquisitions. A shift in the alignment now would cause additional impacts to wetlands, archeological resources, and longitudinal streams.

ALT No.	Description	Savings PW & LCC	Implement	Comments
RIGHT OF WAY (B) - continued				
B-4	Use Red Rock Road as the alignment for a portion of the project	$6,037,100	No	Based on information from OEL (attached), the Red Rock Road alignment would involve additional displacements, impacts to Historical Resources, and additional stream impacts.
UNCLASSIFIED EXCAVATION (C)				
C-1	Reduce the Design Speed to Posted Speed of 55 mph	$2,665,000	No	The approved Concept for this project shows the Design Speed as 65 mph which is the Design Speed used for these types of Rural Arterials.
C-4	Lower profile to reduce Borrow	$2,872,500 (proposed) $1,436,250 (actual)	Yes	There are opportunities to lower the profile and still maintain the AASHTO maximum grade of 4% for this type of facility. Where this can't be done the profile will remain as proposed which was about half of the area that the VE Team proposed.
BRIDGES (E)				
E-2	Use vertical abutments at Oak Valley Road Bridge	$353,700	Yes	This should be done.
E-4	Build a single bridge over Rock Creek instead of twin parallel bridges	$209,800	No	Would require a substantial transition in the median to go from a 44' median width to the 8' median with Barrier Wall. Would introduce horizontal curves and guardrail to the approaches.
E-5	Build a single bridge over Wards Creek instead of twin parallel bridges	$259,700	No	Would require a substantial transition in the median to go from a 44' median width to the 8' median with Barrier Wall. Would introduce horizontal curves and guardrail to the approaches.

A meeting was held on January 10, 2008 to discuss the above recommendations. Kevin McKeen with Arcadis, Tom Cox with Consultant Design, and Brian Summers, Ron Wishon and Lisa Myers with Engineering Services were in attendance. Additional information was provided on January 22, 2008.

The results above reflect the consensus of those in attendance and those who provided input.

Approved: _____ **Date:** 1/29/08
Gerald M. Ross, P. E., Chief Engineer

BKS/REW

Attachments

c: Gus Shanine
Todd Long
James Magnus
Robert Mabry
Mike Haithcock
Tom Cox
Paul Liles
Steve Gaston
Michelle Cheves
Larry Bowman
Ken Werho
Nabil M. Raad
Lisa Myers

Wishon, Ron

From: Cox, Tom
Sent: Tuesday, January 22, 2008 12:25 PM
To: Wishon, Ron
Cc: Peters, Dave; Myers, Lisa
Subject: Proj. No. STP-114-2(13)/P.I. # 132440/Stephens County VE study Implementation Report Follow up

Ron,

Upon discussion with Dave Peters of the OEL it was determined that there were no findings of recorded documentation of the consideration of Red Rock Rd alignment during the concept layout. It was done a few years ago starting in 1993 and left their office in 2002 - the engineers from Location that were involved with this project are no longer available. I then requested that the OEL review the concept layout as it pertains to the B-4 Alternative issue as noted during our VE study report implementation meeting.

Here are our B-4 Alternative collaborative responses in detail listed below:

1) Red Rock Rd along with the side roads will have to be reconstructed entirely to meet GDOT standards for 65 mph. It is similar to a GRIP project as it is a rural arterial highway. Following AASHTO standards for horizontal curvature will require shifting the alignment considerably to avoid curves that do not meet the 65 mph speed design.
2) The entire Fighting Pines subdivision will be affected. A total of 10 additional displacements will also be created by the widening of Red Rock Rd. would be affected. There also is a stream to the north of the subdivision and pushing this alignment to the west in this area would result in a longitudinal encroachment.
3) The known historical resource located at the intersection of Oak Valley Rd and Red Rock Road creates geometric complications if the alignment were to be forced to the west side of Red Road. There are also two potential historic homes located along Red Rock Road after a review of these properties on the Stephen County Tax Assessor's website. A site visit to these sites will be required to determine its eligibility.
4) Any new alignment will also be surveyed for impacts to cultural and natural resources. If the general alignment were able to meet the vertical alignments for 65 mph – Some of the side road tie-ins also need to be worked out depending on the terrain and can result in greater impacts to the properties along with the cultural and natural resources.
5) The existing Red Rock ROW width is approximately 50 feet.
6) It is highly unlikely that there will be a $ 6.0 million savings as the VE study does not account for the costs of resurveying, ecology and archeology and there will be a requirement of a redo of the PAR thus delaying and extending the project schedule. There will be additional costs in Right of Way acquisition, additional supplemental agreement costs.

I recommend that we do not recommend the implementation of the B-4 alternative.

If you have any questions – please let me know.

Thanks,

Tom

Thomas Cox
Consultant Liaison Engineer
Office of Consultant Design

2 Capitol Square, SW
Atlanta, Georgia 30334-1002
(404) 463-7486 thru GRS 1-800-255-0135

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENTAL CORRESPONDENCE

FILE: STP-114-2(13) Stephens County
Proj. No. STP-114-2(13)
S.R. 365 / Toccoa Bypass Extension
From S.R. 17 N.E. to S.R. 365 at C.R. 311

132440

OFFICE: Atlanta

DATE: December 11, 2007

FROM: Mohammed (Babs) Abubakari, P.E., State Consultant Design & Program Delivery Engineer

TO: Brian Summers, P.E., State Project Review Engineer

SUBJECT: **VALUE ENGINEERING STUDY – FINAL REPORT RESPONSE**

Below are the responses to the Value Engineering Study conducted on August 21-24, 2007 for the above referenced project. Each comment was studied and addressed by both the Department's Project Manager and the Consultant's Project Manager:

Extension of Toccoa Bypass from SR 17 NE to SR 365 at CR 311

PAVEMENT:

Value Engineering Alternative No. A-1 – Use Superpave design in lieu of concrete pavement for the mainline.

COMMENTS: The original Life Cycle Cost Analysis (LCCA) and Pavement Type Recommendation report was submitted by the Office of Materials & Research on June 10, 2005. Each of the two alternative pavement designs (concrete and asphalt) was analyzed for their life cycle costs. The OMR's pavement design recommendation was the Full Depth Asphalt.

The design consultant during the Value Engineering study presentation indicated concrete was to be used because the project was on new location. This indication was incorrect.

The evaluation of the LCCA being done by the VE study team using the current pricing for roadway materials indicates that the use of the asphaltic concrete pavement is still more cost effective than the use of concrete pavement.

The VE study team LCCA report indicates the following savings:

The concrete pavement design alternative lists at $3,885,000 per mile and the asphaltic pavement design alternative lists at $2,250,000 per mile results in a capital cost savings of $1,635,000 per mile.

The concrete pavement present worth cost lists at $324,413 and the present worth cost of the asphalt concrete lists at $1,188,918.00 results in a negative future cost savings of $864,505.

The present worth capital cost savings of $1,635,000 per mile and the future cost savings in its present worth results in a savings of $770,495 per mile. The present worth cost savings for the entire project is $3,929,525.

(We recommend the implementation of this alternative)

PAVEMENT:

Value Engineering Alternative No.A-4 – Build a 2 lane typical section on 4 lanes of ROW.

COMMENTS: The recommendation of eliminating two proposed travels from the proposed 4 lane limited access divided highway has been considered. The approved concept layout is currently designed to be a four-lane divided highway with a 44-ft depressed median and it's desirable due to the high traffic volumes of 19,000 ADT in its proposed 2032 design year and high speed design (65mph) in the corridor near the City of Toccoa City Limits. This is considered to be the safest typical section for rural arterials and is highly recommended for this project.

(We do not recommend the implementation of this alternative).

RIGHT OF WAY:

Value Engineering Alternative No. B-2 –Change alignment to avoid displacements in the area of CR 57/Oak Valley Road.

COMMENTS: The recommendation of relocating the alignment to avoid displacements in the area of CR 57/Oak Valley Road has been considered. Four advanced acquisitions (Haddock and Caudell properties) were made during the concept development phase. The original alignment was set in its original location as to avoid wetlands and adverse effects for an historical resource (Horton property). The alignment shift as proposed by the VE study team will also impact additional existing wetlands thus requiring an US Army Corp of Engineers 404 permit. Additional impacts include a possible archeological resource and longitudinal streams will occur if the alignment corridor were shifted so that it lines up with the utility easement boundary. The proposed redesign of this alignment will also incur additional funds for preliminary design.

(We do not recommend the implementation of this alternative).

Value Engineering Alternative No. B-4 – Use Red Rock Road as the alignment for a portion of the project

COMMENTS: The recommendation of the use of Red Rock Road was considered. This alignment shift to be used along Red Rock Road will impact and result in a significant number of displacements and impacts to the streams and historical sites as compared to the original alignment location.

(We do not recommend the implementation of this alternative).

UNCLASSIFIED EXCAVATION:

Value Engineering Alternative No. C-1 – Reduce design speed to posted speed of 55 mph.

COMMENTS: This alternative will not be consistent with rural highway design. The approved concept layout is currently designed to be a four-lane divided highway with a 44-ft depressed median and it's desirable due to the high traffic volumes being over 19,000 ADT in its proposed 2032 design year near the City of Toccoa city limits and high speed design (65 mph). This is considered to be the safest typical section for rural arterials and is recommended for this project.

(We do not recommend the implementation of this alternative).

Value Engineering Alternative No. C-4 – Lower profile to reduce borrow.

COMMENTS: The recommendation of lowering the Toccoa Bypass Extension profile at least 5 ft will be accepted. This option could potentially minimize the R/W impacts to this project. The plans will be revised to balance the earthwork during the development of the construction plans. The VE study team indicates that the present worth savings will be $2,872,500.

(We recommend the implementation of this alternative).

BRIDGES:

Value Engineering Alternative No. E-2 – Use vertical abutments at Oak Valley Road bridge..

COMMENTS: The use of vertical abutments at the two ends of the Oak Valley Road Bridge has been considered. Bridge spans with slope paving at a 2;1 slope at the ends of bridges are the preferred choice for bridges by the Office of Bridge Design. They also allow the use of future or access roads and utility placement. The cost estimate that was provided by the VE study team didn't add the cost of vertical abutment walls to the total cost savings as that would have reduced the cost savings.

It was also noted during discussion with Office of Bridge Design that other projects involving bridge additions do not include the recommendation of providing vertical wall abutments as it is not considered cost saving during construction.

(We do not recommend the implementation of this alternative).

Value Engineering Alternative No. E-4 Build a single bridge over Rock Creek instead of two parallel twin bridges.

COMMENTS: This recommendation has been reviewed and discussed with the Office of Bridge Design staff. This alternative is not consistent with the GDOT Bridge Design guidelines (TOPPS 4265-10) for bridge widths. The guidelines state if the ADT is equal or greater than 4000, the proposed divided multi-lane roadway consists of a pavement width of 24 ft and 14 ft shoulders (4 ft inside shoulder width and 10 ft outside shoulder width).

(We do not recommend the implementation of this alternative).

Value Engineering Alternative No. E-5 Build a single bridge over Wards Creek instead of two parallel twin bridges.

COMMENTS: This recommendation has been reviewed and discussed with the Office of Bridge Design staff. This alternative is not consistent with the GDOT Bridge Design guidelines (TOPPS 4265-10) for bridge widths. The guidelines state if the ADT is equal or greater than 4000, the proposed divided multi-lane roadway consists of a pavement width of 24 ft and 14 ft shoulders (4 ft inside shoulder width and 10 ft outside shoulder width).

(We do not recommend the implementation of this alternative).